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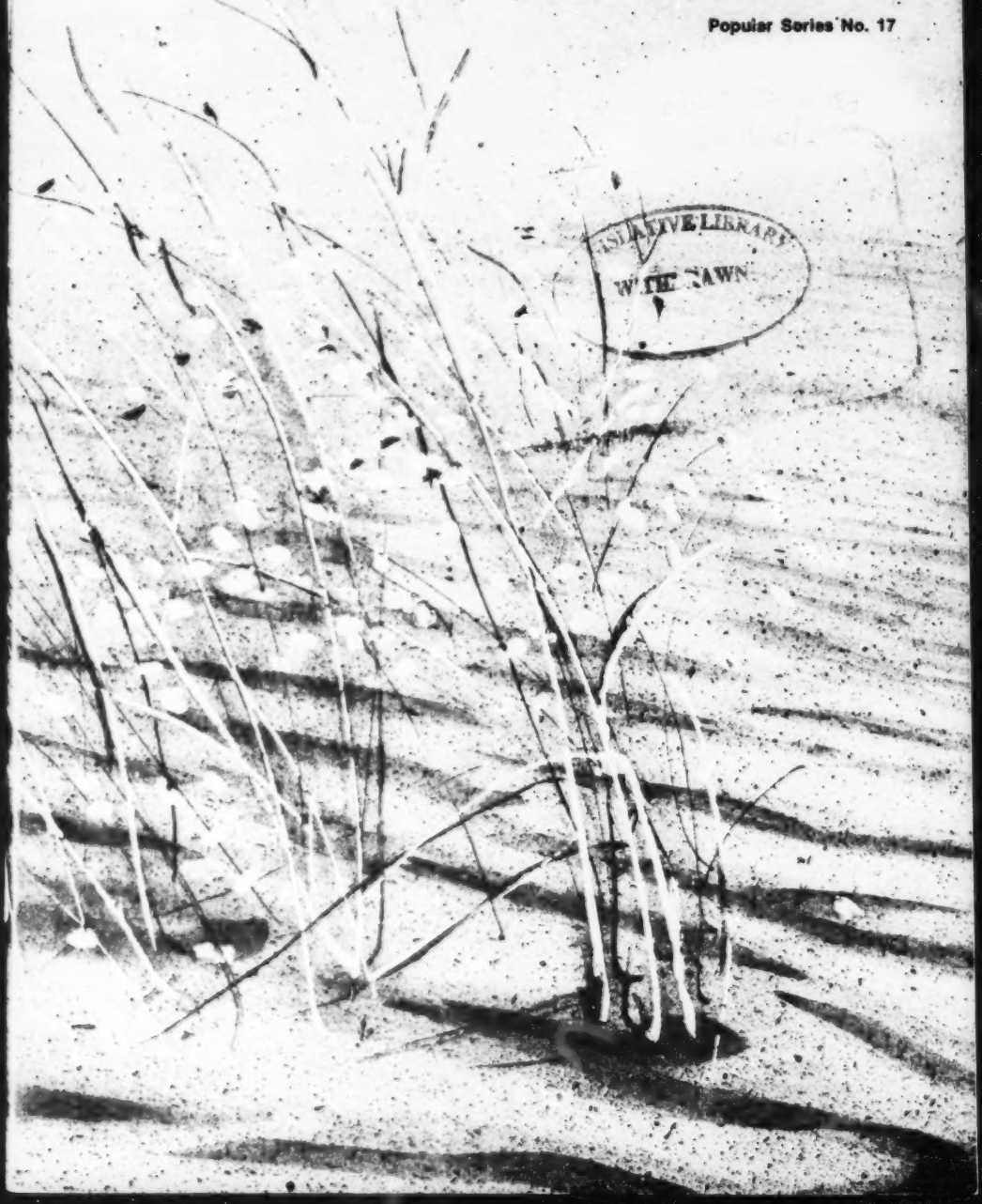
Natural History

Douglas Provincial Park — A Natural History

Popular Series No. 17



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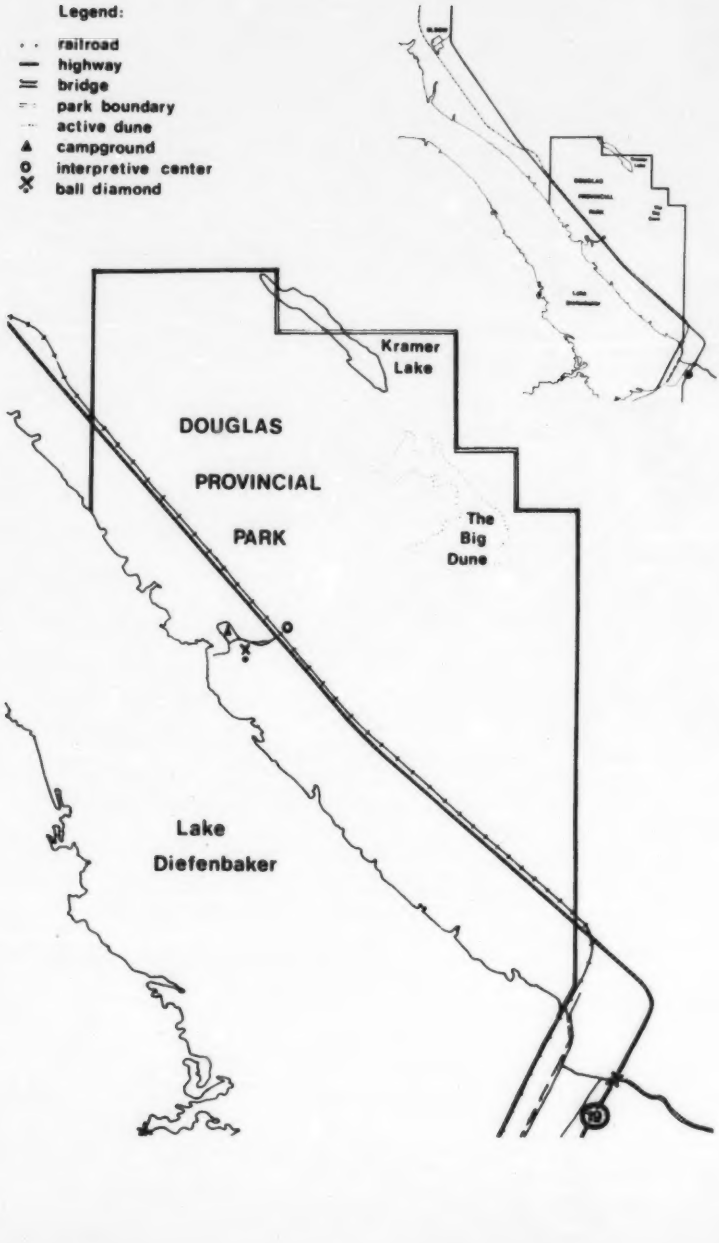
Legend:
railroad
highway
bridge
park boundary
active dune
campground
interpretive center
ball diamond
Kramer
Lake
DOUGLAS
PROVINCIAL
PARK
The
Big
Dune
Lake
Diefenbaker

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Douglas Provincial Park

Introduction

Douglas Provincial Park lies near the center of southern Saskatchewan on the east side of the Qu'Appelle Arm of Lake Diefenbaker, nine km southeast of Elbow on No. 19 highway.

W.M. Baker first advocated creation of a provincial park in the sandhills south of Elbow in 1960, in his report "The Recreation Prospects of the South Saskatchewan Reservoir". The area was considered valuable as a prospective park due to its large tracts of woodland. The proposed park was to contain most of the treed area remaining after the South Saskatchewan River Valley was flooded following completion of the Qu'Appelle Dam and the closing of the South Saskatchewan River (Gardiner) Dam in 1964. Development of the park began in the lakeshore area. By 1967, "enrichment planting" of spruce had been carried out in the surrounding area, and campground development began in that year.

On July 31st, 1973, Douglas Provincial Park was officially established by an Order-in-Council to include 10,956.8 acres, nearly all of the lands proposed by Baker. The map on the inside front cover shows park boundaries and major features.

From May to September, access is open to the lakeshore area where there are facilities for bathing, picnicking and camping. Both electrified and non-electrified camping sites are available at standard rates for provincial parks. The swimming area is supervised and boat launch sites and fish-cleaning tables are provided. There is also a small playground and a ball diamond.

In the lakeshore area, west of Highway No. 19, activities are mostly water oriented. The large natural environment recreation area to the east of Highway No. 19, is suited to hiking, back-packing and nature observation. For back-packers, primitive camping may be allowed on or near the big dune with prior permission of the park superintendent.

Supplies and services can be obtained at the nearby town of Elbow.

Geography and Climate

The geomorphological unit* within which Douglas Provincial Park lies is called the Central Lowlands Province. This is an interior plain occurring between the Precambrian Shield* on the north and the Missouri Coteau* on the south. Within the Central Lowlands Province the park lies within the Saskatchewan Plains Region which is referred to as the second prairie level. The three prairie levels differ in average elevation and travelling from east to west the transition between the levels is seen in a rapid increase in altitude accompanied by ranges of hills. Within the landscape unit* called the Central Saskatchewan Plains (a subdivision of the Saskatchewan Plains Region) lies the Saskatchewan River Plain, the area drained by the North and South Saskatchewan Rivers. Adjacent to these rivers the average elevation of the plain is 580 m. It is underlain by lake deposits or water-washed glacial till*. The main features of the Saskatchewan River Plain are its deep, terraced river valleys, dune areas and hummocky moraine*. Douglas Provincial Park is dominated by a portion of one of these dune areas.

Before the creation of Lake Diefenbaker by the construction of Gardiner Dam at Cutbank, the area was a divide between two drainage systems. The Saskatchewan River system drained toward the northeast and the Qu'Appelle River system drained to the east. In times of floodwater levels water from the South Saskatchewan flowed over and entered the Qu'Appelle system. The Qu'Appelle Dam now allows controlled amounts of water from Lake Diefenbaker to be released into the Qu'Appelle River.

Soils within the park are mostly Regosols*, which show little development of soil profile*. They are wind-worked, sandy deposits that were laid down during deglaciation.

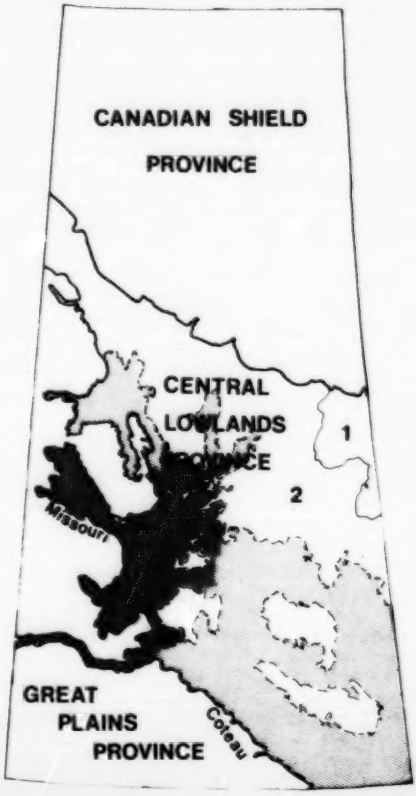
True grassland soils make up the next largest percentage. Here they are Chernozemic Dark Brown* soils, characterized by dark brown topsoil and brownish upper subsoils over lighter colored lower subsoils that have concentrations of lime. Small areas within the park are affected by water erosion or deposition. In these situations profile development does not occur and various types of soil complexes* are recognized.

The park lies near the southwestern border of the Mixed Prairie Zone, which is dominated by a

* Terms defined in the glossary are marked with an asterisk where they first appear in the text.

Physiographic Regions

1 Manitoba Lowlands Region
2 Saskatchewan Plains Region
Central Saskatchewan Plains
Saskatchewan River Plain
Douglas Provincial Park



mixture of grasses of medium and short growth habit*. The vegetation within the major area of the park, however, is not typical and has been classified as a Sandhill Complex type. Wildlife, too, is not typical of the Mixed Prairie Zone because there is little true prairie within the park, and large tracts of wooded land occur within the Sandhill Complex and along the shores of Lake Diefenbaker.

The climate in the park, like that of all the Central Lowlands Province, is the semi-arid continental type, with short, warm summers and long, cold winters. Precipitation averages 35 cm a year with about half that amount falling in the summer months. Snowfall averages 100 cm but depths are usually less due to compaction and drifting, as well as melting and sublimation*. The average frost-free period is about 100 days.

Earth History

The shallow Colorado or Bearpaw Sea, which was connected with the Gulf of Mexico, covered southern Saskatchewan during the late Cretaceous Period 67 to 105 million years ago. Rivers, flowing from the western mountains and the Shield, transported heavy loads of sand, silt and clay to the sea. The larger sands fell to the sea bottom near the mouths of the rivers while the smaller particles were carried farther offshore before they also settled to the bottom. Pressure from the gradual accumulation of sediments, and cementation, formed shales and sandstones. Along the South Saskatchewan River Valley, these layers of sedimentary rock are known as the Bearpaw Formation and are rich in fossils, the remains of the marine life of the period. Ammonites, which are related to our modern day squids, and pelecypods, which are similar to today's clams and oysters, are the two common fossils of the formation. Bearpaw sediments are exposed along parts of the valley where the river has cut through overlying glacial deposits. They are not visible in the park because this part of the valley has been flooded by Lake Diefenbaker.

During the last two million years or so, glaciers advanced and retreated across Saskatchewan, removing all the sediments that had lain on the Bearpaw Formation. The glaciers left a thick layer of pulverized rock, termed glacial till, on much of southern Saskatchewan. Shallow Lake Regina was formed from glacial meltwaters during the last deglaciation. Streams pouring into the lake dropped their coarser sands and gravels in deltas* while the fine particles of silt and clay were carried farther into the lake. The sands of Douglas Park are deltaic in origin and were deposited where the South Saskatchewan River emptied into Glacial Lake Regina. The waters of Glacial Lake Regina eventually drained eastward through the Qu'Appelle Valley. At Elbow, the South Saskatchewan River was diverted by the glacier into the Qu'Appelle Valley through which the meltwaters flowed into Glacial Lake Agassiz near Brandon.

With further retreat of the glacier, the South Saskatchewan drained toward the northeast.

The delta sands, left high and dry, were attacked by the wind and drifted into dunes. The principal dunes of the area are parabolic (U-shaped), with the top of the "U" facing into the prevailing northwesterly winds. Parabolic dunes typically originate on partially vegetated sands. The wind deflates a shallow, saucer-shaped blowout from a sparsely vegetated area and a horseshoe-shaped dune is built up downwind from the hollow. Plants help to catch and stabilize the sand, but the dune may gradually travel downwind.

Water from rain and snow-melt quickly percolates down through the porous sands. The less permeable * underlying layer of glacial till retards further downward movement and the water accumulates in the lower sands. Throughout the park, the till is near the earth's surface, and consequently the water table is high. Where the zone of contact between the layers is exposed along the river valley, water seeps out at springs.

Human History

The land around the junction of the South Saskatchewan and Qu'Appelle Rivers was formerly within the territory of the Blackfoot tribe of American Indians. In historic times Cree and Assiniboine advanced westward in search of furs and the diminishing herds of buffalo from which they could sell to white traders the hides and pemmican in excess of their own needs.

The lands around the Elbow were an area of conflict. In the 1850's Hind reports that the "Plain Crees and the Blackfeet were at war with one another". In speaking of Palliser's and Hind's expeditions, Cowie stated that "Beyond the Couteau and the Elbow their native guides and men refused to proceed; for these marked, at that period, the limit of the hunting-ground won by the Cree and their allies from the Blackfeet and other hostile tribes". Cowie also gave La Pierre's account of an engagement between Blackfoot and Cree at Red Ochre Hills, near the Elbow, in March, 1866, when "no less than six hundred Blackfeet were slain".

In the rough terrain next to the river, which Hind referred to as the Sandy Hills, (part of

which are in Douglas Provincial Park) the Indians constructed buffalo pounds. The circular enclosures were constructed in a valley between sand hills with the lanes of "dead men" extending out into the prairie beyond, to funnel the stampeded buffalo into the impoundment. In the pound observed by Hind two hundred and forty animals had been killed and more had escaped through a hole in the fence.

Cree Indians told of the destruction of a group of rebellious Young Dogs* who were camped by a small lake in the Sandy Hills in the middle 1860's. "Fire from heaven" came from a single cloud which passed over the encampment, dropping a downpour which "like liquid acid" reduced everythig to ashes. When Cowie visited the site in 1868 it remained a barren clay depression in the midst of grassy prairie. The site may have been beside what is now called Kramer Lake.

In addition to the decimation of buffalo by Indian and Metis hunters, European settlers came into the area, and extirpated* many other wildlife species. Some, such as the buffalo, bear and wolves were completely eliminated. Other game, like deer, became scarce. Vegetation was also affected by settlement. Reduced frequency of prairie fires allowed aspen groves to grow rapidly. Protected from fire, the aspen could now grow into large trees, as well as invade previously untreed land.

The area surrounding Douglas Provincial Park was settled early in the 1900's and in 1914 the federal government established the Elbow Forest Reserve. The area was to be artificially stocked with trees for local use. One of the experimental plots of furrow-planted white spruce, jack pine, Scotch pine and caragana is still in existence within the park. Poor survival and slow growth of the trees resulted in the project being considered a failure. In 1930 the land was transferred to the provincial government to be used for grazing. A community pasture was established in 1940, and in 1956 and 1957 much of the level land was seeded with crested wheat grass, smooth brome and Russian wild rye. The area served as a community pasture until the establishment of the park, with grazing still being allowed to the east of the railroad.

Dune Succession

Herbaceous plants with extensive systems of underground roots and stems are first to colonize the hostile environment of newly formed sand dunes. They hold the sand particles and help prevent further erosion. To be successful these plants must withstand dryness, strong winds and periods of abrasion and burial by drifting sand. Many "sand-binders" actually thrive on being buried and continually form new roots closer to the surface of the dune. Locally important pioneers of the bare sands are northern wheat grass, Indian rice grass, sand reed grass, Canada wild rye, Schweinitz's cyperus, narrow-leaved psoralea, skeleton weed, prairie sunflower, veined dock, and sand-bar willow.

Besides helping to stabilize the dunes these plants add organic material to the sand as they die and decompose. Eventually a habitat which is suitable for other kinds of plants is created. Stands of wolf-willow, choke cherry, rose, snowberry, spear grass and June grass may gradually appear and eventually, grasses will dominate drier sites while moister spots feature stands of aspen poplar. The aspen spreads quickly by sending up new stems or "suckers" from the roots. Because the water table is near the surface of the ground, aspen grows on much of the stabilized dune area. The shaded aspen woodland creates somewhat moister conditions

northern wheat grass

sand reed grass

prairie sunflower

Active sand dunes. Note the dune moving in from the left.

wolf-willow

creeping juniper

where wild peavine, Canada anemone, and Western Canada violet can be found. The presence of creeping juniper in many aspen bluffs suggests that the poplars have recently invaded open areas that were earlier colonized by the junipers.

The seeds of colonizing plants arrive at the dunes by a variety of methods of transportation. Small light seeds, frequently equipped with wings or plumes, are borne by the wind. The surface of the sand, and the snow in winter, is relatively smooth and free of obstructions, enabling even larger, heavier seeds, such as the prairie sunflower, to be carried long distances. Nuts and berry-like fruits are eaten by birds and mammals and the indigestible seeds are passed out in the droppings. Mammals also transport burs and other similar fruits that cling to their fur. Other plants invade slowly because they drop their seeds only a short distance away or spread by sending new shoots from their roots or runners.

The burrowing of small mammals, heavy trampling of vegetation by cattle and deer, or disturbance by vehicles exposes the sand, and the wind once again begins its erosive action. A shallow, saucer-shaped depression called a blowout results and a new dune may form downwind from the hollow. Prostrate spreading shrubs, such as creeping juniper and bearberry whose branches reach out over the bare sand, often colonize the blowouts and prevent further erosion.

Active dunes are constantly moving with the prevailing wind (movements as great as 80 feet per year have been recorded in other parts of the world). Sand blown from the hollow skips up the dune surface and over the crest, eventually encroaching on nearby vegetation. The large active dune of the park is presently burying stands of aspen and chokecherry.

Aspen Woodland

In many places along the edge of Lake Diefenbaker there lies a remnant of the rich woodlands formerly present in the Saskatchewan River Valley. Green ash and eastern cottonwood stands grew on the river banks and sides of the valley, but these were flooded out following the construction of Gardiner Dam.

The water table is high near the lakeshore because the impermeable layer of till is close to the surface. Aspen and balsam poplar grow very well under these conditions. The seeds of these species seem to require special conditions to begin growth, so that from the abundance of seeds produced few seedlings result. Thus the spreading of poplars is mainly through the sprouting of new shoots from the roots (called suckering). This method of vegetative reproduction results in a special condition which is most readily observed in autumn. Since a large number of trees have grown up from one system of roots they all have the same genetic material and react to environmental changes in

red-osier dogwood

fairy bells

high-bush cranberry

western Canada violet

the same manner. In autumn the leaves of all the trees in one of these so-called clones* may have turned color while those of a nearby clone will remain green.

In the understory* are shrubs such as choke cherry, saskatoon, red-osier dogwood, twining honeysuckle, and high-bush cranberry. The moist forest floor supports fairy bells, wild sarsaparilla, snake-root, fringed loosestrife, carrionflower, western Canada violet, yellow lady's slipper and many others.

These woodlands are found around and near springs next to Lake Diefenbaker where the composition of the understory is affected by the increased moisture around the margins of the seepage areas. A tall, dense shrub layer grows there. Away from the lakeshore, the aspen groves usually occur in and around depressions. The understory is sparser and the aspen woodland resembles that described under dune succession, with creeping juniper, western snowberry, rose, and star-flowered Solomon's-seal being common components.

yellow lady's slipper

Aspen woodland in the stabilized dune area.

Grassland

The true mixed-grass prairie of the area was found mainly on more level ground in the northern part of the park and near the lakeshore. Areas recently affected by dune succession do not support mixed-grass prairie.

Aridity is the dominant factor influencing grassland vegetation. Grassland plants show several adaptations to drought conditions. These include reduced leaf size and the presence of hairs (trichomes) on stems and leaves and blue-gray coloring. These are characteristics which reduce the loss of water (transpiration) from the plants. Extensive root systems increase the plants' ability to take up water.

The most common grasses are June grass, spear grass, northern wheat grass, sand reed grass and blue grama grass. Some of this grassland area has been modified by the seeding of the Eurasian species crested wheat grass, smooth brome, and Russian wild rye, as well as sweet clover and alfalfa. Common herbs are prairie sage and lesser club moss (prairie selaginella). Wildflowers to be found in the grasslands include field chickweed, small-flowered prairie rocket, early yellow locoweed, golden bean, silver-leaved psoralea, prairie cinquefoil, purple milk-vetch, narrow-leaved vetch, hairy golden aster, long-headed coneflower and white prairie aster. Three different kinds of cacti may be found in this area. The prickly pear and the brittle prickly pear both

June grass

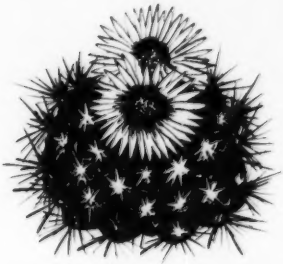
spear grass

field chickweed

silverleaf psoralea

long-headed coneflower

prickly pear



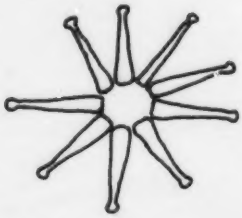
ball cactus

have large flowers with broad yellow petals. The ball cactus has many narrow petals of a brilliant pink color.

The grassland is also characterized by clumps and patches of shrubs including western snowberry, Wood's rose, wolf-willow and thorny buffaloberry. These shrub patches are important habitat for birds and mammals of the prairies.

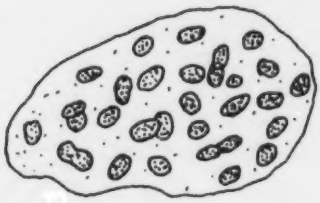
The grassland in this area has been seeded with crested wheat grass.

Wetlands



Asterionella formosa

Cyclotella sp.



Aphanothece sp. colony

Water bodies within (or adjoining) the park include Kramer Lake and Lake Diefenbaker. In addition there are various areas of seepage where wetland vegetation is established.

Where Lake Diefenbaker adjoins the park, wave action has created a sandy shoreline. The abnormal water regime (high in late summer and low during winter and spring) inhibits the growth of wetland plants, but some have become established in sheltered inlets near springs, and at the high water level. Free floating plants are microscopic and are mostly diatoms such as *Asterionella formosa* and *Cyclotella* species and blue green algae such as *Aphanothece* species. Sago pondweed is one of the submerged plants which has become established. The shoreline supports mats of water persicaria. In sheltered inlets where springs empty into the lake, cattails, bulrushes and sedges grow, and spike-rushes are becoming established.

water birch

Along the valley's edge, the sand-till contact is exposed and water, which is prevented from percolating downward by the till layer, seeps out at these points. Standing water occurring in seepage areas above full supply level of the lake, creates conditions favourable to plants typically found in more northern parkland and boreal forest areas.

Dominant plants are hoary willow, water birch, aquatic and beaked sedges, Baltic rush and marsh muhly grass. Some of the unusual species are Kalm's lobelia, Torrey's and long-styled rushes, northern grass-of-Parnassus, fringed gentian, northern green orchid, Loesel's twayblade and tall cotton grass.

Where seepage occurs into undrained depressions the soils have become saline. These areas support such plants as little bluestem, saline shooting star, mealy primrose, blue-eyed grass, northern grass-of-Parnassus, northern green orchid and basket willow, and in the drier parts June grass, creeping juniper and small-leaved everlasting.

baltic rush

Kalm's lobelia

northern grass-of-Parnassus

northern green orchid

seaside arrow-grass

The shore of Lake Diefenbaker is covered here with a dense growth of water persicaria.

More strongly saline soils in the bottoms of depressions or around the intermittent waters of Kramer Lake and other sloughs support Nuttall's salt grass, foxtail barley and seaside arrow-grass. Where cattle disturb the area, many weedy plants such as several kinds of goosefoot, silverweed and gumweed grow. Wildflowers to look for include seaside buttercup and sea milkwort.

The deeper part of Kramer Lake which supports some aquatic plants is outside the park boundary.

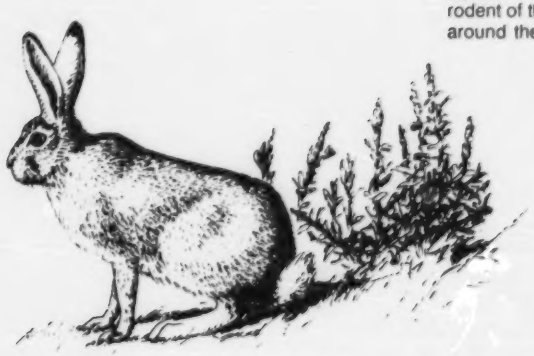
Mammals

Two deer species occur locally. They are the white-tailed deer, typical of wooded parts of Southern Saskatchewan and the mule deer common in sand dunes, river breaks, and other rugged habitats. Both deer depend heavily on dogwood, saskatoon, choke cherry, snowberry and other shrubs for winter food. The park is an important wintering area because it supplies an abundance of these browse plants, as well as shelter.

white-tailed deer

The rabbit family is represented by the white-tailed jack rabbit and the snowshoe hare. The jack rabbit frequents grasslands and grainfields bordered with some shrubbery where it eats a variety of greens during summer, and twigs, buds and bark during winter. The snowshoe hare has a similar diet, but makes aspen bluffs and other wooded areas its home. Nuttall's cottontails are found in coulees and river bottoms of the South Saskatchewan River nearby, and may also occur in the park.

Three kinds of ground squirrels ("gophers") are found here. The Richardson's ground squirrel lives in open areas such as heavily grazed pasturelands. Its burrows are easily recognized by the mounds of dirt piled around the entrances. The thirteen-lined ground squirrel ("striped gopher") prefers less open habitats. The opening of its burrow is inconspicuous as the loose dirt is kicked away from around the hole. The Franklin's ground squirrel ("bush gopher") is a slightly larger, gray rodent of the moister woodlands and is often seen around the campgrounds.

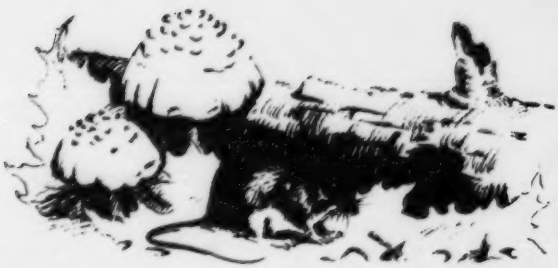


white-tailed jack rabbit

Our only true gopher is the northern pocket gopher. They seldom venture from their extensive system of underground burrows during the daylight hours, although they do occasionally wander afield at night. The excavated dirt from the multitude of tunnels leaves a mole hill appearance and for this reason pocket gophers are mistakenly called moles. Pocket gophers may be serious pests in farmlands, especially vegetable gardens, but they serve an important role in the ecology of the grasslands because they loosen the soil and make it more porous and better for plant growth.

Franklin's ground squirrel

The most numerous of all the park mammals is the deer mouse, so named because of the deer-like brown and white pattern of its soft, dense fur. It finds much habitat to its liking locally, as it prefers drier grassy or wooded lands. Like other small rodents deer mice are very prolific and can raise several litters of 3 to 6 young in a year. Predators, severe winter weather, food shortage, diseases and parasites all tend to bring the high fall



deer mouse

populations back to a low level by the spring.

In wetter lowlands the deer mouse is replaced by the meadow vole, a stocky mouse with short ears and tail. Numerous narrow trails or runways in the tall grasses are evidence of the activity of these "field mice". Meadow voles can be very abundant in some years, but comparatively scarce in others, since they peak in population every 3 or 4 years. The causes of these cycles, although not well understood, are thought to be related to genetic or physiological changes in the voles.

Look for burrows of the tiny olive-backed pocket mouse on sparsely vegetated sandy soils. Pocket mice are dormant throughout much of the winter, waking occasionally to feed on the weed seeds they have cached deep within their underground burrows.

coyote

The sharp barks and falsetto howl that break the stillness of evening or early morning reveal the presence of coyotes within the park. These medium-sized members of the dog family den and hunt within the park in the hilly dune area and the stands of aspen. They live on mice, ground squirrels, carrion, and the occasional deer or domestic animal.

Another carnivore* to be found in this area is the long-tailed weasel. They live mostly upon meadow voles and deer mice with other small mammals, some insects, birds and berries making up the remainder of their diet. They store prey that they do not need immediately in underground larders which they begin to fill as winter approaches. At this time, too, they lose their brown summer hair, and it is replaced with white hair.

long-tailed weasel

Two carnivores probably once found in the park, but now extinct are the plains or buffalo wolf and the plains grizzly.

Birds

The sharp-tailed grouse (incorrectly called prairie chicken) is Saskatchewan's bird emblem and our most important upland gamebird. It is a bird of grassland and brush edges which has suffered greatly due to habitat destruction. Sandhill areas such as those within the park afford some of the best habitat left for this species in the province. Here, patches of brush provide excellent nesting, roosting, and feeding sites while open areas are suitable places for feeding and the well known "dancing" activities. In the spring the male sharp-tailed grouse gather together at traditional dancing grounds, or leks, where they display, vocalize, and establish territories in an attempt to win any females attracted to the site.

Mourning doves are often seen perching on wires or the bare branches of a tree, or picking up grit along the roadside. This species is best recognized by its long pointed tail and wings and rapid direct flight characterized by a faint whistling sound. The mournful cooing calls in spring and summer are also distinctive. Doves construct a fragile nest of sticks in a low tree or shrub or, in open areas, on the ground. Occasionally an old robin or grackle nest may be used. Nestlings hatching from the two whitish eggs are fed "pigeon's milk", a curdy but nutritious secretion of the crop lining. A pair of adults may raise several broods in a summer. Mourning doves can occupy a wide variety of habitats ranging from desert to humid forest, providing that two basic resources are present — food (mainly in the form of seeds) and drinking water.

Common nighthawks are most active on still evenings. These acrobatic flyers plunge into clouds of insects and capture a multitude of prey in their wide-gaping mouths. Although they are most frequently seen and heard at dusk, the term "nighthawk" is a misnomer as the birds are not hawks at all and they are often active by day. The family name, Caprimulgidae, translates literally as "milker of goats", an allusion to an ancient superstitition concerning these birds. The female nests in the open on sandy, gravelly, or stoney ground where her two speckled eggs are difficult to find. She has cryptic* coloration and is nearly impossible to spot on the nest because her coloring blends with the ground and the vegetation around her.

Despite their bright coloration, rufous-sided towhees are infrequently seen because they inhabit dense scrubby islands of high shrubs within the prairie. From the edges of these stands, clay-colored sparrows sing their insect-like buzzes.

Three relatives of the clay-colored sparrows frequent the open grasslands: the savannah, Baird's, and vesper sparrows. Other grassland birds to watch are the meadowlarks and horned larks. You may also see a Sprague's pipit, or more likely, hear it as it sings from high aloft giving a series of descending, bubbly, double notes. Singing while in flight, to advertise their territory, is typical of many grassland birds because grasslands do not offer singing perches as are found in woodlands.

An egg of different size and color in the nest of one of these birds indicates that it has been discovered by a brown-headed cowbird. This member of the blackbird family lays all its eggs in the nests of other birds. The host* incubates the cowbird eggs and feeds the young, often at the expense of its own nestlings, which may hatch later and grow more slowly.

The woodlands are also rich in bird life. Eastern kingbirds and least flycatchers hunt insects by darting from their perches near an opening in the trees or at the wood's edge. While the kingbird is familiar to many, the least flycatcher has several look-alike relatives and is best identified by its "chebek" call.

sharp-tailed grouse

common nighthawk

Listen also for the tapping sound produced by the smallest of our North American woodpeckers, the downy woodpecker. Careful observation usually reveals this bird probing the bark of a nearby tree for insect larvae. Both male and female of the species share in the excavation of a nesting cavity from a decaying tree and in incubating the 3 to 6 white eggs.

A large stick platform high in an aspen or balsam poplar is home to nesting red-tailed hawks. These large buteos soar high overhead while keeping a constant vigil for ground squirrels, mice, and other prey.

A smaller hawk, the merlin (pigeon hawk), pursues small birds, insects, and rodents with rapid beats of its pointed wings. This species has been placed on a list of endangered Canadian birds, however, it has nested successfully within the aspen parkland-like fringe of the park.

Other common woodland species include the northern (formerly Baltimore) oriole, the gray catbird and the veery. House wrens and mountain bluebirds nest in hollow trees, deserted woodpecker cavities and in nest boxes.

Although the land area is mainly arid, waterbirds are common along Lake Diefenbaker and at Kramer Lake. Mallard, gadwall, pintail, wigeon, killdeer, and spotted sandpiper are typical wetland species. The rare whooping crane has been known to use Kramer Lake as a migratory stop.

One hundred and seventy-one species of birds have been recorded for the park. Of these, seventy-nine are believed to nest there. Species observed are included in the appended checklist. Have you observed any additional species?

least flycatcher

merlin

rufous-sided towhee

spotted sandpiper

Amphibians and Reptiles

Because of the dry nature of the landscape amphibians, which are dependent on fresh water for their early stages of life, are not numerous except around the few potholes and dugouts. These animals lay their eggs in water and the resulting larvae or tadpoles eventually develop into the adult form. Boreal chorus frogs, familiar for their spring mating songs, the larger, spotted, leopard frog, and the drier-skinned, warty, Canadian toad are amphibians found locally. They comprise much of the diet of the Western plains garter snake. This reptile, which is common near water throughout the grasslands and parklands of Saskatchewan, also eats fish, salamanders, insects, earthworms and mice. In late July, August, or September, females give birth to about 40 young, each measuring about 7 inches in length. Both amphibians and reptiles hibernate in winter.

boreal chorus frog

western plains garter snake

Fish

Prior to the construction of Gardiner Dam, the South Saskatchewan River was home to several species of fish including northern pike, walleye (pickerel), sauger, goldeye, and lake sturgeon. With the creation of Lake Diefenbaker, additional species, such as lake trout and lake whitefish which prefer larger, colder bodies of water, were stocked.

Whitefish have taken well to the lake and are present in large numbers. They are mainly bottom feeders which eat invertebrates and small fish, but they occasionally rise to the surface to feed on emerging insects.

Lake trout are cold water species preferring the well-oxygenated depths where the water is about 10 C. Ciscoes and tullibees are their major food item in many lakes. Stocking of trout in Lake Diefenbaker has not been very successful.

Both whitefish and lake trout move into the shallows to spawn in the fall. Survival of the eggs may be hampered by winter drawdown of the reservoir, which exposes the spawning beds. Therefore, in order to have continued supplies of these species, the lake may have to have a permanent stocking program.

Walleye and sauger do best in shallow turbid lakes and larger rivers although the former species also inhabits clear northern lakes. Both these fish have large, light sensitive eyes which allow them to see well in dark or murky water. They avoid bright sunlight, however, and if the lake is clear they may only come into the shallows on overcast days or in the evenings. Walleye and sauger feed on minnows and other small fish.

Northern pike (jackfish) inhabit shallow waters where they feed upon a variety of fishes. They are popular among anglers as they are easily caught on many different lures.

Most fishermen are not familiar with lake sturgeon. These primitive, torpedo-shaped fish are covered with protective bony plates. They

lake whitefish

have a hard, extended snout and their mouth is located on the ventral (underside) part of the head. Sturgeon feed on the bottom by sucking up invertebrate* food. They grow very slowly, but may live to be 80 years or more and attain a weight of 100 pounds. Since the late 1800's their flesh and eggs (called caviar) have been highly desired as food, and overfishing in North America has resulted. This, along with the damming of spawning rivers, has detrimentally affected sturgeon populations. In this province, lake sturgeon are present only in the Saskatchewan and Churchill River systems.

Northern redhorses, white suckers, and longnose suckers have similar food habits to the sturgeon and are common throughout the reservoir. With mouth parts on the underside of their head, these fish suck up material from the lake bottom and strain out the invertebrates for food.

Small fish such as lake chubs, spottail shiners, emerald shiners, river shiners, fathead minnows, brook sticklebacks and Iowa darters are important components of the aquatic food chain. They feed on tiny plants and animals called plankton and are in turn eaten by larger predatory fish.

lake sturgeon

white sucker

fathead minnow

Insects

The woods and prairies support a varied butterfly fauna. In June the large, yellow and black Canadian tiger swallowtail can be found in most places with poplar woods. Unlike many of our butterflies, swallowtails overwinter as a pupa or chrysalis* rather than as a larval stage (caterpillar). The adults emerge from the pupal stage when the air warms in late May or early June and they may remain active into July. The females lay their eggs on aspen poplar, yielding caterpillars that are green with two large eye spots on the back. They hatch in approximately a week. The larvae feed voraciously on the leaves of the trees and grow rapidly, shedding their skin several times before they pupate. When they are full grown, around August, the caterpillars stop eating and seek a suitable location to pupate and overwinter. The change from a caterpillar through the pupal stage to a butterfly is called complete metamorphosis.

In the grasslands, tawny or buff-colored ringlet butterflies are numerous during June and early July. Rarely, a second brood will appear later in the summer. The larvae, which feed on grasses, are the overwintering stage.

A number of other butterfly species are also common in the park, such as the alfalfa butterfly, cabbage white, silver-spotted skipper and purplish copper.

The open sands of the dunes and beaches combine with the sunny prairie summers to create ideal conditions for tiger beetles. These are active, often brightly colored insects which feed on a variety of smaller prey. They capture their quarry with their sickle-like mandibles (mouth parts). The larvae live in shallow vertical burrows in the sand. They are also predaceous and lie in wait at the top of the tunnel, their jaws wide open, in the chance that some unsuspecting insect should pass by. A hook on the top side of the abdomen helps anchor the larva in its burrow should it capture larger prey. The largest species of Saskatchewan tiger beetles, *Cicindela formosa gibsoni* is locally common on bare sand in the park. The head and thorax are purplish and the wing covers (elytra*) are cream-colored with purplish inner margins.

Grasshoppers are another common element of the insect life. Most grasshoppers overwinter as eggs which the females have laid in clusters in the soil. When these hatch in the spring the young (nymphs) must pass through several stages of growth (called instars) and moults of their exoskeleton* before they reach the adult stage. Since the nymph is similar in appearance to the adult, the process of change is called incomplete metamorphosis.

One of the most readily recognized of the grasshoppers to be seen here is the Carolina grasshopper. When the adult flies, the wings show black with a pale yellow border. They belong to the group of band-winged grasshoppers which are usually those most often noticed, not only for their brightly colored wings, but because they make loud crackling noises when in flight.

ringlet

Cicindela formosa gibsoni

Carolina grasshopper

A number of interesting scarab beetles are found in the area. The largest species is the ten-lined June beetle. It is 28 millimetres long and is khaki colored with white stripes running lengthwise The next largest species is the goldsmith beetle. It is 24 millimetres long and is gold colored and is not banded. Both of these species feed on poplar leaves in sandy areas.

Resource Management in the Park

The special features of Douglas Provincial Park are sand dunes, freshwater springs and saline seepage areas. These fragile, easily disturbed areas create unusual diversity within this small area. Plants and animals with grassland, parkland and boreal affinities are present. In addition there are species restricted to sand dunes. The area is ideal for outdoor education, recreation and nature appreciation.

To provide these opportunities and to protect special physical, biological or historical features, parks are designated public land. Resource management ensures the compatibility of use and protection goals. When the features of the park are fragile and unusual in the area, management must encourage their use in a manner that will not disrupt natural processes.

On Lake Diefenbaker, bays formed where the valley wall had previously been cut away by water from springs. When the lake is at its full supply level, wave action causes both erosion and the piling up of debris in these bays. This action should be carefully monitored and steps taken, if necessary, to protect the freshwater springs and their unusual flora. The wildflowers of the springs, as in any area of the park, should not be picked. When flowers are removed, the seeds that will produce the next generation are not formed. The effects of this action are magnified in areas of small isolated populations.

The vegetation of the sand dunes holds a precarious position and the delicate balance is easily shifted against it. Because of their disruptive influence on dune stability, all-terrain vehicles should not be permitted access to the dune area. Visitors should also be encouraged to spread their activities over the park, rather than following paths. The creation of paths destroys vegetation and could result in blow-out formation. To prevent this, no defined nature trails will be laid out in the dune area, although general guideposts may be used to aid orientation.

Wildlife is an important resource in the park. Grazing cattle interact with wildlife, creating management problems. Cattle not only alter the landscape by trail-making, and the vegetation by selective grazing, but they reduce the quality of shelter (by trampling, etc.) and compete with native animal species for food. The quality of nesting habitat for some birds is reduced and in some cases is destroyed. In wooded or sand dune areas where grasses are scarce, or in heavily grazed areas, cattle browse on woody shrubs and thereby compete with deer for critical winter food supply. Because in winter these shrubs are low in nutritional value, during cold weather and when snow is deep, deer have a negative energy balance and use fat stored during summer and fall. When food supplies and shelter quality are decreased by summer use by cattle, starvation of deer can result.

Very little land has been set aside for wildlife. The most valuable areas for that purpose are virgin lands where the vegetation has had minimal disturbance. Public lands within parks can be made fully available to wildlife, benefitting not only the native species, but also the human visitors who wish to experience the natural environment.

Glossary

abrasion — the act of wearing or rubbing away.

carnivore — organism that lives on animal flesh; also an order of mammals (Carnivora).

Chernozemic Dark Brown — term used to designate a prairie soil with dark brown topsoil, brownish upper subsoil and light colored lower subsoil.

chrysalis — the pupa case of butterflies, in which the larva undergoes changes (metamorphosis) to become an adult.

clone — a plant group all of whose members have been derived from a single individual through vegetative or asexual propagation.

cryptic coloration — resemblance of coloration (of an animal) to that of the surroundings.

delta — a deposit of silt at the mouth of a river.

elytra (singular elytron) — the thickened, horny or leathery front wings of beetles and some other insects.

exoskeleton — the supporting framework or skeleton of an invertebrate, which forms the outermost covering of the body.

extirpation — extinction of an organism in a given area.

geomorphological unit — an area of the land surface which has similar surface features and developmental history.

habit (growth habit) — characteristic manner of growth or form of plant (or animal).

host — an organism that is the subject of parasitism by an organism of another species.

invertebrate — animals not having a backbone of vertebrae, which are small bones connected in a series by ligaments (strong, elastic tissues).

landscape unit — area of land surface characterized by one dominant surface feature (eg. plain, hill range).

metamorphosis — a transformation from a larval to an adult form.

Missouri Coteau — an upland area of rough, hilly country on the edge of the geographic province named the Great Plains, running in a line from north of Unity to the southwest of Estevan.

moraine — debris of ground rock deposited at the edges and base of glaciers.

parasite — organism that lives in or on an organism of another species; in the case of birds, it is a species which lays its egg(s) in the nest of another species, which then incubates the egg(s) and feeds the young.

permeable — allowing the passage of fluids.

Precambrian or Canadian Shield — a shield-shaped region in central Canada and Greenland where Precambrian rock is exposed. These rocks are mostly granite and are among the most ancient known.

profile (soil profile) — a succession of visible layers or horizons in the soil caused by soil forming processes such as weathering, biological activity, and transfer of materials.

Regosol — term used to designate a "young" soil with largely mineral content, little humus, and little development of soil layers or horizons.

soil association — a group of different soil classes, usually identified by a geographic location, which are similar in structure and developed from similar parent material.

soil complex — in some areas a variety of deposits and soil forming processes result in mixtures of soil classes that cannot be adequately separated and thus are referred to as soil complexes.

sublimation — a conversion of a solid (ice or snow) to a vapor, without passing through a liquid state.

till (glacial till) — a glacial deposit of unsorted clay, sand and gravel.

understory — undergrowth; shrubs and herbs growing beneath the canopy of tree cover.

Young Dogs — Indians of mixed Cree and Assiniboine origins.

Checklist of Common or Unusual Plants

Horsetail Family (Equisetaceae)
common scouring-rush (*Equisetum hyemale*)
smooth scouring-rush (*Equisetum laevigatum*)

Spike-moss Family (Selaginellaceae)
prairie selaginella (*Selaginella densa*)

Pine Family (Pinaceae)
creeping juniper (*Juniperus horizontalis*)
white spruce (*Picea glauca*)
jack pine (*Pinus banksiana*)

Cattail Family (Typhaceae)
common cattail (*Typha latifolia*)

Pondweed Family (Zosteraceae or Najadaceae)
sago pondweed (*Potamogeton pectinatus*)

Water-plantain Family (Alismaceae)
narrow-leaved water plantain (*Alisma gramineum*)

Arrow-Grass Family (Juncaginaceae)
seaside arrow-grass (*Triglochin maritima*)

Grass Family (Graminae)
crested wheat grass (*Agropyron cristatum*)
northern wheat grass (*Agropyron dasystachyum*)
western wheat grass (*Agropyron smithii*)
little bluestem (*Andropogon scoparius*)
Hooker's oatgrass (*Avena hookeri*)
blue grama (*Bouteloua gracilis*)
awnless brome (*Bromus inermis*)
nodding brome (*Bromus anomalus*)
sand reed grass (*Calamovilfa longifolia*)
wild oat grass (*Danthonia intermedia*)
alkali grass (*Distichlis stricta*)
nodding wild rye (*Elymus canadensis*)
russian wild rye (*Elymus junceus*)
sheep fescue (*Festuca ovina*)
wild barley (*Hordeum jubatum*)
june grass (*Koeleria cristata*)
marsh muhly (*Muhlenbergia racemosa*)
mat muhly (*Muhlenbergia richardsonis*)
mountain rice grass (*Oryzopsis asperifolia*)
Indian rice grass (*Oryzopsis hymenoides*)
Canby blue grass (*Poa canbyi*)
Sandberg's blue grass (*Poa secunda*)
Nuttall's salt-meadow grass (*Puccinellia nuttalliana*)
purple oat grass (*Schizachne pupurascens*)
sand dropseed (*Sporobolus cryptandrus*)
spear grass (*Stipa comata*)

Sedge Family (Cyperaceae)
water sedge (*Carex aquatilis*)
golden sedge (*Carex aurea*)
low sedge (*Carex eleocharis*)
dry sedge (*Carex foenea*)
sun-loving sedge (*Carex heliophila*)
blunt sedge (*Carex obtusata*)
Parry's sedge (*Carex parryana*)
beaked sedge (*Carex rostrata*)
Schweinitz's cyperus (*Cyperus schweinitzii*)
needle spike-rush (*Eleocharis acicularis*)
tall cottongrass (*Eriophorum angustifolium*)
three-square bulrush (*Scirpus americanus*)
small-fruited bulrush (*Scirpus microcarpus*)

Rush Family (Juncaceae)
baltic rush (*Juncus balticus*)
toad rush (*Juncus bufonius*)
long-styled rush (*Juncus longistylis*)
Richardson's rush (*Juncus richardsonianus*)

Lily Family (Liliaceae)
fairy bells (*Disporum trachycarpum*)
wood lily (prairie lily) (*Lilium philadelphicum*)
star-flowered Solomon's-seal (*Smilacina stellata*)
carrionflower (*Smilax lasioneura*)
smooth camus (*Zygadenus elegans*)

Iris Family (Iridaceae)
common blue-eyed grass (*Sisyrinchium montanum*)

Orchid Family (Orchidaceae)
yellow lady's slipper (*Cypripedium calceolus*)
green-flowered bog orchid (*Habenaria hyperborea*)
Loesel's twayblade (*Liparis loeselii*)

Willow Family (Salicaceae)
balsam poplar (*Populus balsamifera*)
aspen poplar (*Populus tremuloides*)
hybrid poplar (*Populus deltoides* X *P. balsamifera*)
beaked willow (*Salix bebbiana*)
hoary willow (*Salix candida*)
sandbar willow (*Salix interior*)
basket willow (*Salix petiolaris*)
autumn willow (*Salix serissima*)

Birch Family (Betulaceae)
swamp birch (*Betula glandulifera*)
river birch (*Betula occidentalis*)

Hazel Family (Corylaceae)
beaked hazelnut (*Corylus cornuta*)

Nettle Family (Urticaceae)
common nettle (*Urtica gracilis*)

Sandalwood Family (Santalaceae)
pale comandra (*Comandra pallida*)

Buckwheat Family (Polygonaceae)
swamp persicaria (*Polygonum coccineum*)
water persicaria (*Polygonum lapthifolium*)
western dock (*Rumex occidentalis*)
veined dock (*Rumex venosus*)

Goosefoot Family (Chenopodiaceae)
lamb's quarters (*Chenopodium album*)
samphire (*Salicornia rubra*)
Russian thistle (*Salsola kali*)
sea blite (*Suaeda depressa*)

Pink Family (Caryophyllaceae)
blunt-leaved sandwort (*Arenaria lateriflora*)
field chickweed (*Cerastium arvense*)

Crowfoot Family (Ranunculaceae)
red baneberry (*Actaea rubra*)
Canada anemone (*Anemone canadensis*)
crocus anemone (*Anemone patens*)
cursed crowfoot (*Ranunculus sceleratus*)
seaside buttercup (*Ranunculus cymbalaria*)

Caper Family (Capparidaceae)
pink cleome or beeplant (*Cleome serrulata*)

Mustard Family (Cruciferae)
reflexed rock cress (*Arabis holboellii*)
flixweed (*Descurainea sophia*)
prairie rocket (*Erysimum asperum*)
small-flowered prairie-rocket (*Erysimum inconspicuum*)
sand bladderpod (*Lesquerella arenosa*)

Saxifrage Family (Saxifragaceae)
northern grass-of-Parnassus (*Parnassia palustris*)
gooseberry (*Ribes oxyacanthoides*)

Rose Family (Rosaceae)
saskatoon (*Amelanchier alnifolia*)
hawthorn (*Crataegus chrysocarpa*)
smooth wild strawberry (*Fragaria glauca*)
three-flowered avens (*Geum triflorum*)
silverweed (*Potentilla anserina*)
early cinquefoil (*Potentilla concinna*)
prairie cinquefoil (*Potentilla pensylvanica*)
pin cherry (*Prunus pensylvanica*)
choke cherry (*Prunus virginiana var. melanocarpa*)
prickly rose (*Rosa acicularis*)
prairie rose (*Rosa arkansana*)
Wood's rose (*Rosa woodsii*)
dewberry (*Rubus pubescens*)
wild red raspberry (*Rubus strigosus*)
narrow-leaved meadowsweet (*Spiraea alba*)

Pea Family (Leguminosae)
Canadian milk-vetch (*Astragalus canadensis*)
ground-plum (*Astragalus crassicarpus*)
narrow-leaved milk-vetch (*Astragalus pectinatus*)
common caragana (*Caragana arborescens*)
wild licorice (*Glycyrrhiza lepidota*)
cream-colored vetchling (*Lathyrus ochroleucus*)
wild peavine (*Lathyrus venosus*)
alfalfa (*Medicago sativa*)
white sweet-clover (*Melilotus alba*)
yellow sweet-clover (*Melilotus officinalis*)
early yellow locoweed (*Oxytropis macounii*)
purple prairie-clover (*Petalostemon purpureum*)
silverleaf psoralea (*Psoralea argophylla*)
lance-leaved psoralea (*Psoralea lanceolata*)
golden bean (*Thermopsis rhombifolia*)
American vetch (*Vicia americana*)
narrow-leaved vetch (*Vicia sparsifolia*)

Flax Family (Linaceae)
yellow flax (*Linum compactum*)
wild blue flax (*Linum lewisii*)

Sumach Family (Anacardiaceae)
poison-ivy (*Rhus radicans*)

Maple Family (Aceraceae)
Manitoba maple (*Acer negundo*)

Violet Family (Violaceae)
early blue violet (*Viola adunca*)
yellow prairie violet (*Viola nuttallii*)
western Canada violet (*Viola rugulosa*)

Cactus Family (Cactaceae)
purple or ball cactus (*Mamillaria vivipara*)
brittle prickly-pear (*Opuntia fragilis*)
prickly-pear (*Opuntia polyacantha*)

Oleaster Family (Elaeagnaceae)
wolf-willow (*Elaeagnus commutata*)
buffaloberry (*Shepherdia argentea*)

Evening-primrose Family (Onagraceae)
white evening-primrose (*Oenothera nuttallii*)
shrubby evening-primrose (*Oenothera serrulata*)

Mare's-tail Family (Hippuridaceae)
Mare's-tail (*Hippuris vulgaris*)

Ginseng Family (Araliaceae)
wild sarsaparilla (*Aralia nudicaulis*)

Parsley Family (Umbelliferae)
water hemlock (*Cicuta douglasii*)
snakeroot (*Sanicula marilandica*)
heart-leaved Alexanders (*Zizia aptera*)

Dogwood Family (Cornaceae)
red-osier dogwood (*Cornus stolonifera*)

Wintergreen Family (Pyrolaceae)
pink wintergreen (*Pyrola asarifolia*)

Heath Family (Ericaceae)
bearberry (*Arctostaphylos uva-ursi*)

Primrose Family (Primulaceae)
pygmy flower (*Androsace septentrionalis*)
saline shooting star (*Dodecatheon pauciflorum*)
sea milkwort (*Glaux maritima*)
fringed loosestrife (*Lysimachia ciliata*)
tufted loosestrife (*Lysimachia thyrsiflora*)
mealy primrose (*Primula incana*)

Gentian Family (Gentianaceae)
fringed gentian (*Gentiana crinita*)

Milkweed Family (Asclepiadaceae)
green milkweed (*Asclepias viridiflora*)

Phlox Family (Polemoniaceae)
narrow-leaved collomia (*Collomia lineare*)

Borage Family (Boraginaceae)
bluebur (*Lappula echinata*)
stick-tights (*Lappula redowskii*)
narrow-leaved puccoon (*Lithospermum angustifolium*)

Mint Family (Labiatae)
water horehound (*Lycopus americanus*)
white water horehound (*Lycopus asper*)
wild mint (*Mentha arvensis*)

Figwort Family (Scrophulariaceae)
downy paintbrush (*Castilleja sessiliflora*)
owl's-clover(*Orthocarpus luteus*)
white beardtongue (*Penstemon albidus*)
lilac-flowered beardtongue (*Penstemon gracilis*)
smooth blue beardtongue (*Penstemon nitidus*)

Plantain Family (Plantaginaceae)
saline plantain (*Plantago eriopoda*)
common plantain (*Plantago major*)
Pursh's plantain (*Plantago purshii*)

Madder Family (Rubiaceae)
northern bedstraw (*Galium boreale*)
sweet-scented bedstraw (*Galium triflorum*)

Honeysuckle Family (Caprifoliaceae)
twinflower (*Linnaea borealis*)
snowberry (*Symphoricarpos albus*)
western snowberry (*Symphoricarpos occidentalis*)
high-bush cranberry (*Viburnum trilobum*)

Bluebell Family (Campanulaceae)
harebell (*Campanula rotundifolia*)

Lobelia Family (Lobeliaceae)
Kalm's lobelia (*Lobelia kalmii*)

Composite Family (Compositae)
yarrow (*Achillea millefolium*)
large-flowered false dandelion (*Agoseris glauca*)

low everlasting (*Antennaria aprica*)
small-leaved everlasting (*Antennaria parvifolia*)
biennial wormwood (*Artemisia biennis*)
plains wormwood (*Artemisia camporum*)
pasture sage (*Artemisia frigida*)
prairie sage (*Artemisia gnaphalodes*)
Lindley's aster (*Aster ciliolatus*)
white prairie aster (*Aster falcatus*)
tufted prairie aster (*Aster pansus*)
nodding thistle (*Carduus nutans*)
hairy golden aster (*Chrysopis villosa*)
wavy-leaved thistle (*Cirsium undulatum*)
rough fleabane (*Erigeron asper*)
great-flowered gaillardia (*Gaillardia aristata*)
gumweed (*Grindelia perennis*)
prairie sunflower (*Helianthus petiolaris*)
blue lettuce (*Lactuca pulchella*)
meadow blazing-star (*Liatris ligulistylis*)
dotted blazing-star (*Liatris punctata*)
balsam groundsel (*Senecio pauperculus*)
low goldenrod (*Solidago missouriensis*)
perennial sowthistle (*Sonchus arvensis*)
dandelion (*Taraxacum officinale*)
yellow goat's-beard (*Tragopogon dubius*)

Checklist of Mammals

Shrews
masked shrew
wandering or vagrant shrew

Bats
little brown bat

Raccoons
raccoon

Dogs
coyote
red fox

Weasels
long-tailed weasel
least weasel
mink
striped skunk

Rabbits and Hares
snowshoe hare
white-tailed jack rabbit

Squirrels
least chipmunk
Richardson's ground squirrel
thirteen-lined ground squirrel
Franklin's ground squirrel

Pocket Gophers
northern pocket gopher

Pocket Mice
olive-backed pocket mouse

Beaver
beaver

Mice, Rats and Voles
deer mouse
white-footed mouse
Gapper's red-backed vole
meadow vole
muskrat

Jumping Mice
western jumping mouse

New World Porcupine
porcupine

Deer
mule deer
white-tailed deer

Checklist of Birds

Loon
common loon

Grebe
red-necked grebe
horned grebe
eared grebe
western grebe
pied-billed grebe

Pelican
white pelican

Cormorant
double-crested cormorant

Heron
great blue heron

Swans, Geese and Ducks
whistling swan
Canada goose
white-fronted goose
snow goose
mallard
gadwall
pintail
American green-winged teal
blue-winged teal
American wigeon
northern shoveler
redhead
ring-necked duck
canvasback
lesser scaup
common goldeneye
bufflehead

Ruddy Duck
ruddy duck

Mergansers
common merganser

Hawks, Eagles, Harriers
goshawk
sharp-shinned hawk
Cooper's hawk
red-tailed hawk
Swainson's hawk
rough-legged hawk
golden eagle
bald eagle
marsh hawk

Falcons
merlin
American kestrel

Grouse
ruffed grouse
sharp-tailed grouse

Cranes
whooping crane
sandhill crane

Rails and Coot
sora
American coot

Plovers
- semipalmated plover
- piping plover
- killdeer
- American golden plover
- black-bellied plover

Turnstone, Snipe and Sandpipers
- ruddy turnstone
- common snipe
- long-billed curlew
- upland sandpiper
- spotted sandpiper
- solitary sandpiper
- willet
- greater yellowlegs
- lesser yellowlegs
- pectoral sandpiper
- white-rumped sandpiper
- Baird's sandpiper
- long-billed dowitcher
- stilt sandpiper
- semipalmated sandpiper
- marbled godwit
- sanderling

Avocet
- American avocet

Phalaropes
- Wilson's phalarope
- northern phalarope

Gulls and Terns
- California gull
- ring-billed gull
- Franklin's gull
- Bonaparte's gull
- common tern
- black tern

Pigeons and Doves
- rock dove
- mourning dove

Cuckoos
- black-billed cuckoo

Owls
- great horned owl
- snowy owl
- long-eared owl
- saw-whet owl

Goatsuckers
- common nighthawk

Kingfisher
- belted kingfisher

Woodpeckers
- common flicker
- yellow-bellied sapsucker
- hairy woodpecker
- downy woodpecker

Tyrant Flycatchers
- eastern kingbird
- western kingbird
- alder flycatcher
- least flycatcher
- olive-sided flycatcher

Larks
- horned lark

Swallows
- tree swallow
- bank swallow
- barn swallow
- cliff swallow

Jay, Magpie, Crow
- blue jay
- black-billed magpie
- common crow

Titmice
- black-capped chickadee

Nuthatches
- white-breasted nuthatch
- red-breasted nuthatch

Wrens
- house wren

Mockingbird and Thrasher
- gray catbird
- brown thrasher

Thrush, Bluebird
- American robin
- hermit thrush
- Swainson's thrush
- gray-cheeked thrush
- veery
- eastern bluebird
- mountain bluebird

Kinglets
- golden-crowned kinglet
- ruby-crowned kinglet

Pipits
- water pipit
- Sprague's pipit

Waxwings
- Bohemian waxwing
- cedar waxwing

Shrikes
- northern shrike

Starling
- common starling

Vireos
- red-eyed vireo
- warbling vireo

Wood Warblers
- black-and-white warbler
- Tennessee warbler
- orange-crowned warbler
- yellow warbler
- magnolia warbler
- yellow-rumped warbler
- blackburnian warbler
- blackpoll warbler
- ovenbird
- northern waterthrush
- mourning warbler
- common yellowthroat
- Wilson's warbler
- American redstart

Weaver finch
- house sparrow

Meadowlark, Blackbirds, Oriole
- western meadowlark
- red-winged blackbird
- northern (Baltimore) oriole
- Brewer's blackbird
- brown-headed cowbird

Grosbeaks, Finches, Sparrows and Buntings
- purple finch
- pine grosbeak

common redpoll
pine siskin
American goldfinch
rufous-sided towhee
lark bunting
savannah sparrow
grasshopper sparrow
Baird's sparrow
lark sparrow
Le Conte's sparrow
vesper sparrow
dark-eyed junco
tree sparrow
chipping sparrow
clay-colored sparrow
Harris' sparrow
white-crowned sparrow
white-throated sparrow
Lincoln's sparrow
song sparrow
Lapland longspur
chestnut-collared longspur
snow bunting

Checklist of Fish

Sturgeon
Lake sturgeon

Salmon
Rainbow trout (m)
Lake trout (r)
Lake whitefish (r)**

Mooneye
Goldeye*
Mooneye

Pike
Northern pike**

Minnow or Carp
Lake chub*
Emerald shiner**
River shiner*
Spottail shiner**
Fathead minnow*
Flathead chub*

Sucker
Quillback
white sucker*
Longnose sucker*
Shorthead or northern redhorse*

Cod
Burbot*

Stickleback
Brook stickleback*

Trout-Perch
Trout-perch

Perch
Yellow perch
Sauger**
Walleye or pickerel (r)**
Iowa darter*

Sculpin
Spoonhead sculpin

* Common
** Abundant
(r) Indicates that fry or fingerlings have been released in the attempt to establish or increase populations of these species.
(m) Migrant from Alberta

Checklist of Some Common Insects

A more complete list of insects found in the park area is available from the Museum of Natural History. Only species with common names have been included in the following list.

Grasshoppers, Crickets
Short-horned Grasshoppers
Band-winged Grasshoppers
green fool grasshopper
speckled rangeland grasshopper
Say's grasshopper
mottled sand grasshopper
Carolina grasshopper
pronotal range grasshopper
coral-winged grasshopper
red-shanked grasshopper
toothed field grasshopper
Carlinian snapper grasshopper
Numerous other species, not band-winged, are found in the park.
Crickets
field cricket

Beetles
Tiger Beetles
common tiger beetle
white tiger beetle
At least 6 other species of tiger beetles are found in the area.
Scarab Beetles
ten-lined june beetle
goldsmith beetle
Lady Beetles
common red lady beetle
Weevils
strawberry root weevil
Other families represented in the area are ground beetles, crawling water beetles, predacious diving beetles, water scavenger beetles, darkling beetles, and leaf-eating beetles.

Butterflies
Skippers
Assiniboia skipper
Garita skipper
dreamy dusky wing
Persius dusky wing
silver-spotted skipper
Swallowtails
Canadian tiger swallowtail
Whites, Sulphurs
western checkered white
cabbage white
alfalfa butterfly
Gossamer-winged Butterflies
striped hairstreak
purplish copper
Melissa blue
western tailed blue
silvery blue
Brush-footed Butterflies
white admiral
red admiral
Milbert's tortoise shell
mourning cloak
gray comma
tawny crescent
northwestern silverspot
Aphrodite
variegated fritillary

Monarchs
monarch
Meadow Browns
ringlet
Riding's satyr
Varuna arctic
common alpine

Moths

Silk Moths
Polyphemus silk moth
Sphinx Moths
wild cherry sphinx
Cerisy's sphinx
blinded sphinx
big poplar sphinx
Geometrid Moths
Californian granite
pepper and salt moth
sharp-toothed thorn
twin-spot carpet
Hook-tip Moths
scalloped hook-tip
Prominent Moths
common chocolate-tip
Bruce's chocolate-tip
small pebble
Noctuid Moths
rubbed dart
divergent dart
variegated cutworm
black-girdled dart
w-marked cutworm
clover cutworm
crested polia
garden polia
small grey polia
Ruby Penman
island stylus
comma wainscot
pale-shouldered brindle
The Brother
common grass moth
Erichto looper
pointed grass moth
northern arches
American snout moth
Tiger Moths
spotted salmon tiger
Virginian tiger moth
William's tiger moth

Other families of moths found in the area include the tent caterpillars, tussock moths and six families within the group of small moths classed as the microlepidoptera: the slug caterpillars, olethretid moths, tortricid moths, blastobasid moths, ethmiid moths and pyralid moths.

Selected References

General:

Baker, W.M. 1960. The recreation prospects of the South Saskatchewan Reservoir. Part I and Part II. South Saskatchewan River Development Commission. 125p; 203p.

Richards, J. Howard (ed.) 1969. Atlas of Saskatchewan. Saskatoon: Modern Press.

Earth History:

Caldwell, W.G.E. 1968. The late Cretaceous Bearpaw Formation in the South Saskatchewan River Valley. Saskatchewan Research Council, Geology Division, Report No. 8. 89p.

Edmunds, F.H. 1962. Recession of Wisconsin Glacier from central Saskatchewan. Saskatchewan Department of Mineral Resources Report No. 67.

Scott, J.S. 1962. Surficial geology of the Elbow area. Canada Department of Mines Technical Survey.

History:

Cowie, I. 1913. The Company of Adventurers. Toronto: William Briggs.

Hind, H.Y. 1860. Narrative of the Canadian River exploring expedition of 1857 and of the Assiniboine and Saskatchewan exploring expedition of 1858. 2 Vol. London: Longman, Green, Longman and Roberts.

Flora:

Budd, A.C. and K.F. Best. 1964. Wild Plants of the Canadian prairies. Ottawa: Queen's Printer. 519p.

Carmichael, L.T. n.d. Common marsh plants of Saskatchewan. Saskatchewan Museum of Natural History. 40p.

_____ 1966. Woodland Wildflowers of eastern Saskatchewan. Saskatchewan Museum of Natural History 87p.

_____ 1967. Saskatchewan wildflowers, western area. Saskatchewan Museum of Natural History. 108p.

Hulett, G.K., R.T. Coupland and R.L. Dix. 1966. The vegetation of dunesand areas within the grassland region of Saskatchewan. Can. Journal Bot. 44: 1301-1331.

Moss, E.H. 1959. Flora of Alberta. University of Toronto Press. 546p.

Mulligan, Gerald A. 1976. Common weeds of Canada. McClelland and Stewart Ltd. 140p.

Vance, F.R., J. Jowsey and J. McLean. 1977. Wildflowers across the prairies. Western Producers Prairie Books. Saskatoon: Modern Press. 214p.

Fauna:

Banfield, A.W.F. 1974. The mammals of Canada. National Museums of Canada and University of Toronto Press. 438p.

Beck, W.H. 1958. A guide to Saskatchewan mammals. Saskatchewan Natural History Society Special Publication I. 52p. (out of print)

Borror, D.J. and D.M. Delong. 1964. An

introduction to the study of insects. Third edition. N.Y.: Holt, Rinehart and Winston. 812p.

Cook, Francis, R. 1966. A guide to the amphibians and reptiles of Saskatchewan. Regina: Saskatchewan Museum of Natural History. Popular Series No. 13. 40p.

Froom, B. 1972. The snakes of Canada. Toronto: McClelland and Stewart Ltd. 128p.

Godfrey, W.E. 1966. The birds of Canada. National Museums of Canada. Bulletin 203. 428p.

Holland, W.J. 1968 ed. The Moth Book. N.Y.: Dover Publications, Inc. 479p.

Hooper, R. 1973. Butterflies of Saskatchewan, a field guide. Museum of Natural History. 216p.

Roy, J.F. 1964. An introduction to the birds of Elbow. Saskatchewan Natural History Society. 33p.

Scott, W.B. and E.J. Crossman. 1973. Freshwater fishes of Canada. Ottawa: Fisheries Research Board of Canada. Bulletin 184. 966p.

Soper, J.D. 1964. The Mammals of Alberta. The Hamly Press. 402p.

Wrigley, R.E. 1974. Mammals of the sandhills of south-western Manitoba. The Canadian Field-Naturalist 88 (1): 21-39.

Zim, S. and C. Cottam. 1951. Insects, a guide to familiar American insects. N.Y.: Golden Press. 160p.

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